

WARN_KNU_thesis

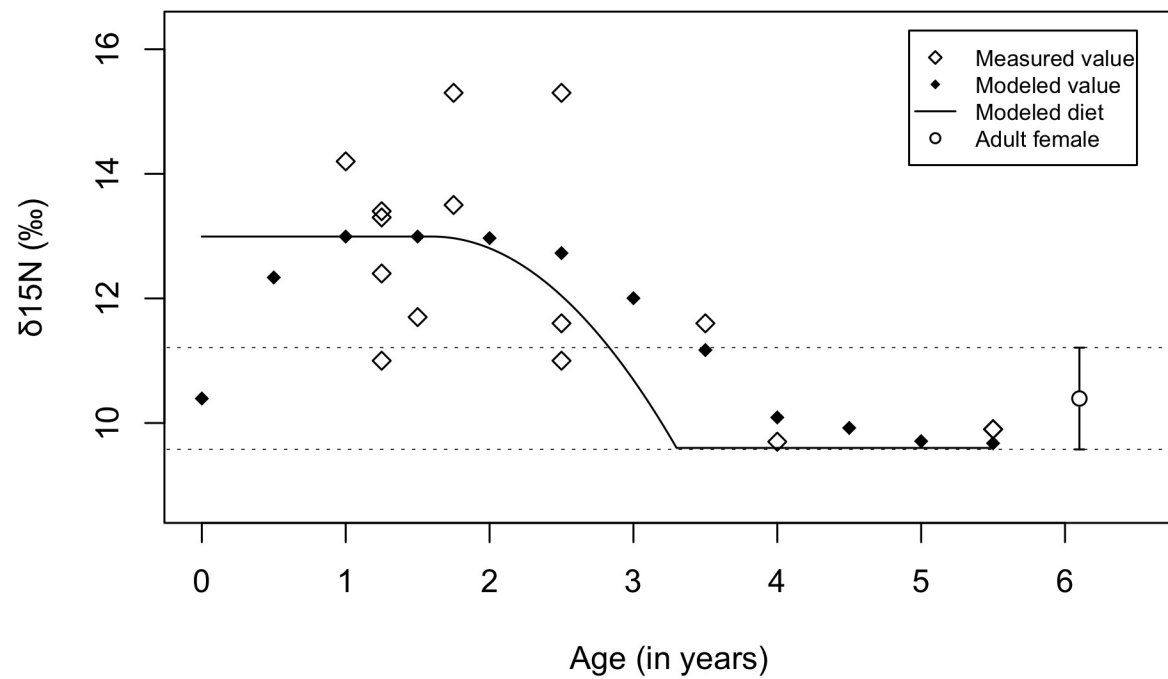
Anne Kremmer

5/3/2022

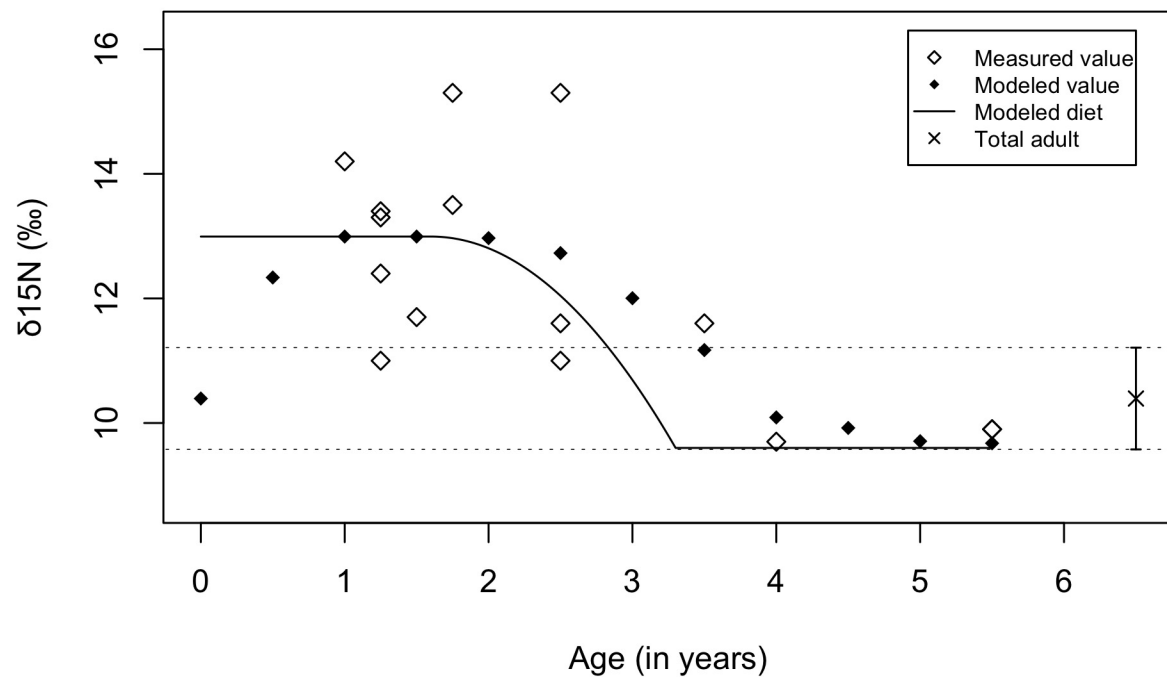
Warn function medial

```
## Remains: 7 6 5 4 3 2 1

## Call:
## warn.default(age = nonadult$age, d15N = nonadult$d15N, female.mean = mean(female$d15N),
##      female.sd = sd(female$d15N), fraction = "collagen", prior = c(0.5,
##      3, 3, 3, 1.9, 0.9, 10.39, 3, 0, 1), num.particle = 10000,
##      tolerances = c(2, 1, 0.5, 0.25, 0.125, 0.0625, 0))
##
## MDEs and marginal probabilities:
##      mde probability
## t1      1.6  0.05946781
## t2      3.3  0.09261746
## enrich 2.6  0.13743543
## wnfood 9.6  0.06780323
##
## Joint probability of the waening ages:
## [1] 0.005907051
##
## Mean squared distance under MDE parameters:
## [1] 1.648544
##
## Number of non-adult individuals:
## [1] 15
##
## Number of particles:
## [1] 10000
```



```
## $rect
## $rect$w
## [1] 1.583726
##
## $rect$h
## [1] 2.16
##
## $rect$left
## [1] 4.916274
##
## $rect$top
## [1] 16.3
##
##
## $text
## $text$x
## [1] 5.378713 5.378713 5.378713 5.378713
##
## $text$y
## [1] 15.868 15.436 15.004 14.572
```

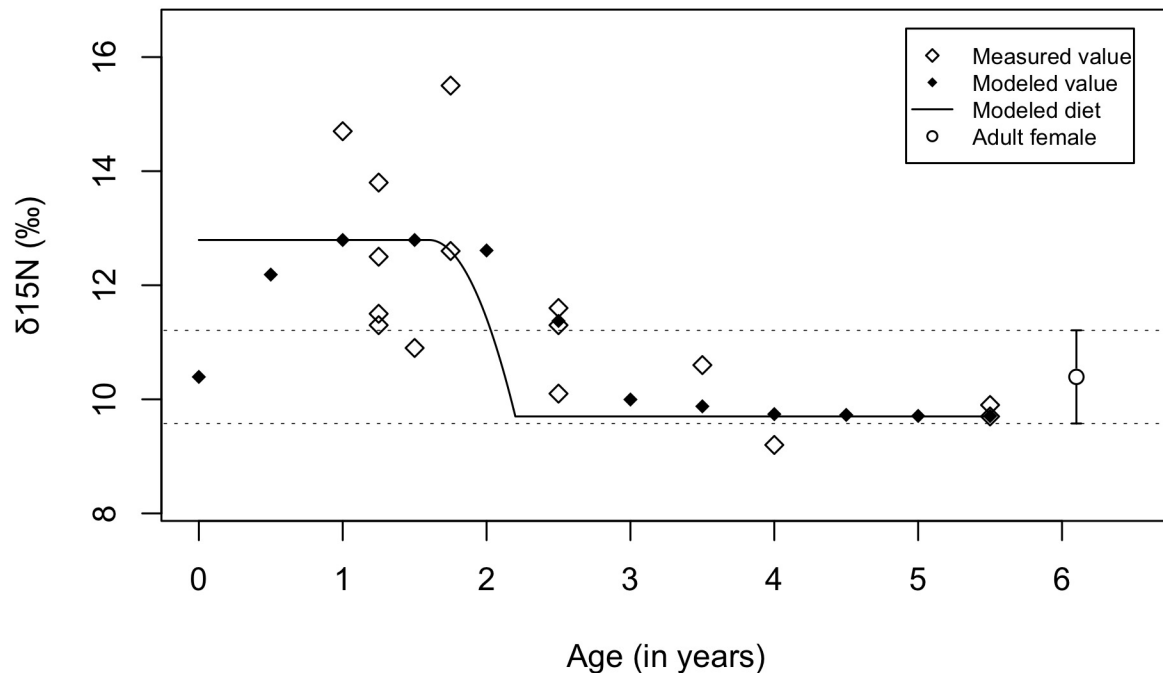


```
## $rect
## $rect$w
## [1] 1.583726
##
## $rect$h
## [1] 2.16
##
## $rect$left
## [1] 4.916274
##
## $rect$top
## [1] 16.3
##
##
## $text
## $text$x
## [1] 5.378713 5.378713 5.378713 5.378713
##
## $text$y
## [1] 15.868 15.436 15.004 14.572
```

Warn function distal

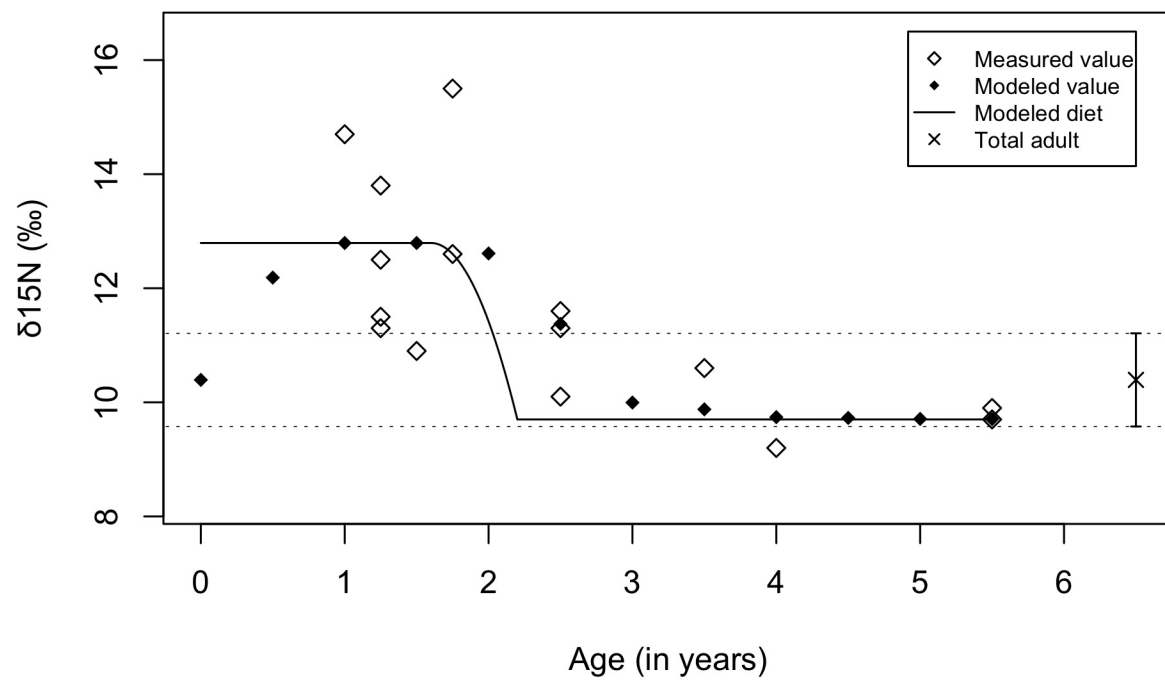
```
## Remains: 7 6 5 4 3 2 1
## Call:
## warn.default(age = nonadultd$age, d15N = nonadultd$d15N, female.mean = mean(female$d15N),
```

```
##      female.sd = sd(female$d15N), fraction = "collagen", prior = c(0.5,
##          3, 3, 3, 1.9, 0.9, 10.39, 3, 0, 1), num.particle = 10000,
##      tolerances = c(2, 1, 0.5, 0.25, 0.125, 0.0625, 0))
##
## MDEs and marginal probabilities:
##      mde probability
## t1      1.6  0.08763087
## t2      2.2  0.13117516
## enrich 2.4  0.11775815
## wnfood 9.7  0.10353708
##
## Joint probability of the waening ages:
## [1] 0.01379424
##
## Mean squared distance under MDE parameters:
## [1] 1.476555
##
## Number of non-adult individuals:
## [1] 15
##
## Number of particles:
## [1] 10000
```



```
## $rect
## $rect$w
## [1] 1.583726
##
```

```
## $rect$h
## [1] 2.358947
##
## $rect$left
## [1] 4.916274
##
## $rect$top
## [1] 16.5
##
##
## $text
## $text$x
## [1] 5.378713 5.378713 5.378713 5.378713
##
## $text$y
## [1] 16.02821 15.55642 15.08463 14.61284
```



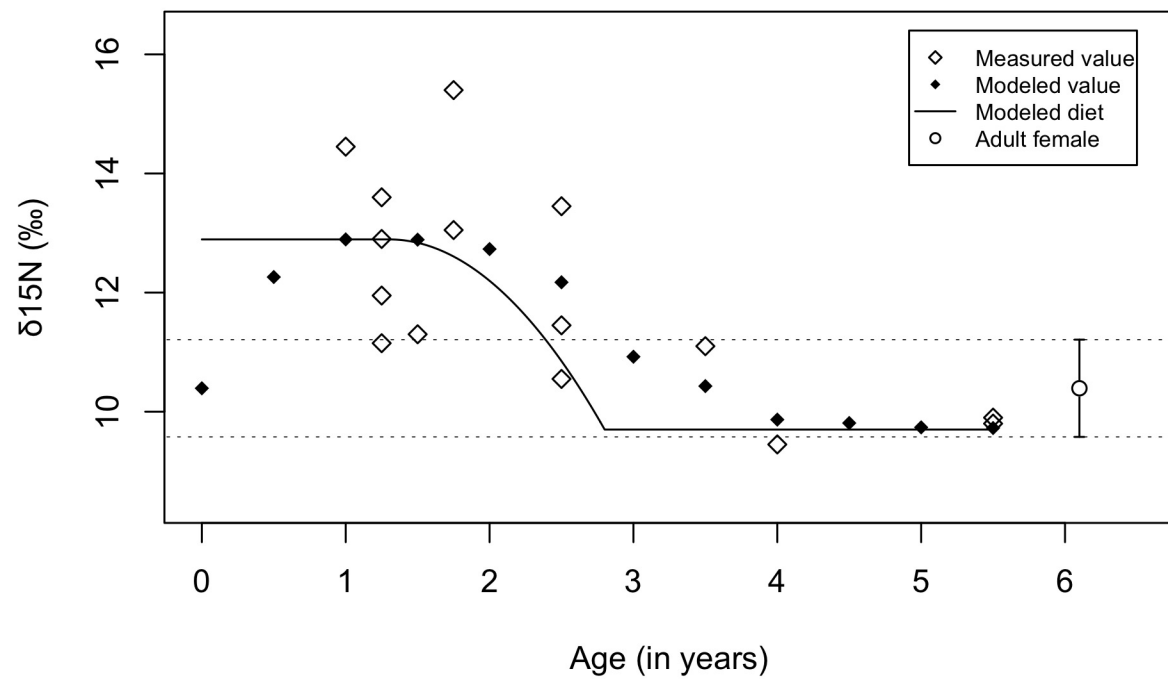
```
## $rect
## $rect$h
## [1] 1.583726
##
## $rect$left
## [1] 4.916274
##
```

```
## $rect$top
## [1] 16.5
##
##
## $text
## $text$x
## [1] 5.378713 5.378713 5.378713 5.378713
##
## $text$y
## [1] 16.02821 15.55642 15.08463 14.61284
```

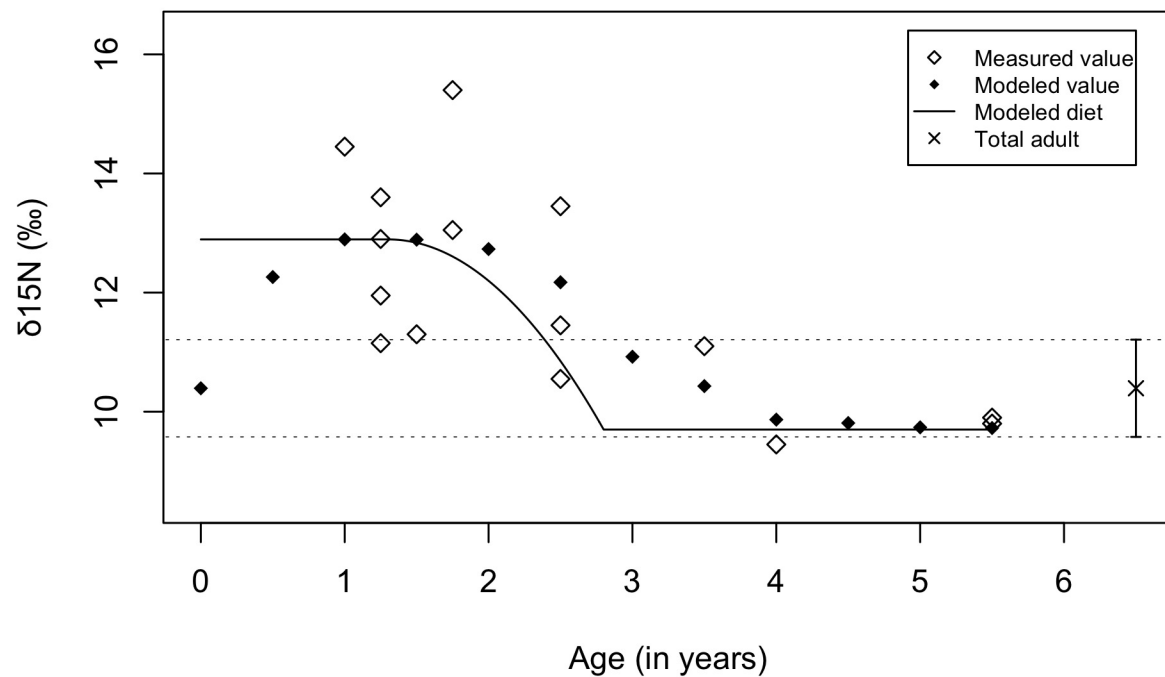
Warn function mix

```
## Remains: 7 6 5 4 3 2 1

## Call:
## warn.default(age = nonadult$age, d15N = nonadult$d15N, female.mean = mean(female$d15N),
##      female.sd = sd(female$d15N), fraction = "collagen", prior = c(0.5,
##      3, 3, 3, 1.9, 0.9, 10.39, 3, 0, 1), num.particle = 10000,
##      tolerances = c(2, 1, 0.5, 0.25, 0.125, 0.0625, 0))
##
## MDEs and marginal probabilities:
##      mde probability
## t1      1.3  0.06587506
## t2      2.8  0.07299975
## enrich 2.5  0.13011066
## wnfood 9.7  0.07400272
##
## Joint probability of the waening ages:
## [1] 0.005493155
##
## Mean squared distance under MDE parameters:
## [1] 1.431323
##
## Number of non-adult individuals:
## [1] 15
##
## Number of particles:
## [1] 10000
```



```
## $rect
## $rect$w
## [1] 1.583726
##
## $rect$h
## [1] 2.259474
##
## $rect$left
## [1] 4.916274
##
## $rect$top
## [1] 16.4
##
##
## $text
## $text$x
## [1] 5.378713 5.378713 5.378713 5.378713
##
## $text$y
## [1] 15.94811 15.49621 15.04432 14.59242
```



```
## $rect
## $rect$w
## [1] 1.583726
##
## $rect$h
## [1] 2.259474
##
## $rect$left
## [1] 4.916274
##
## $rect$top
## [1] 16.4
##
##
## $text
## $text$x
## [1] 5.378713 5.378713 5.378713 5.378713
##
## $text$y
## [1] 15.94811 15.49621 15.04432 14.59242
```

WarnCI medial

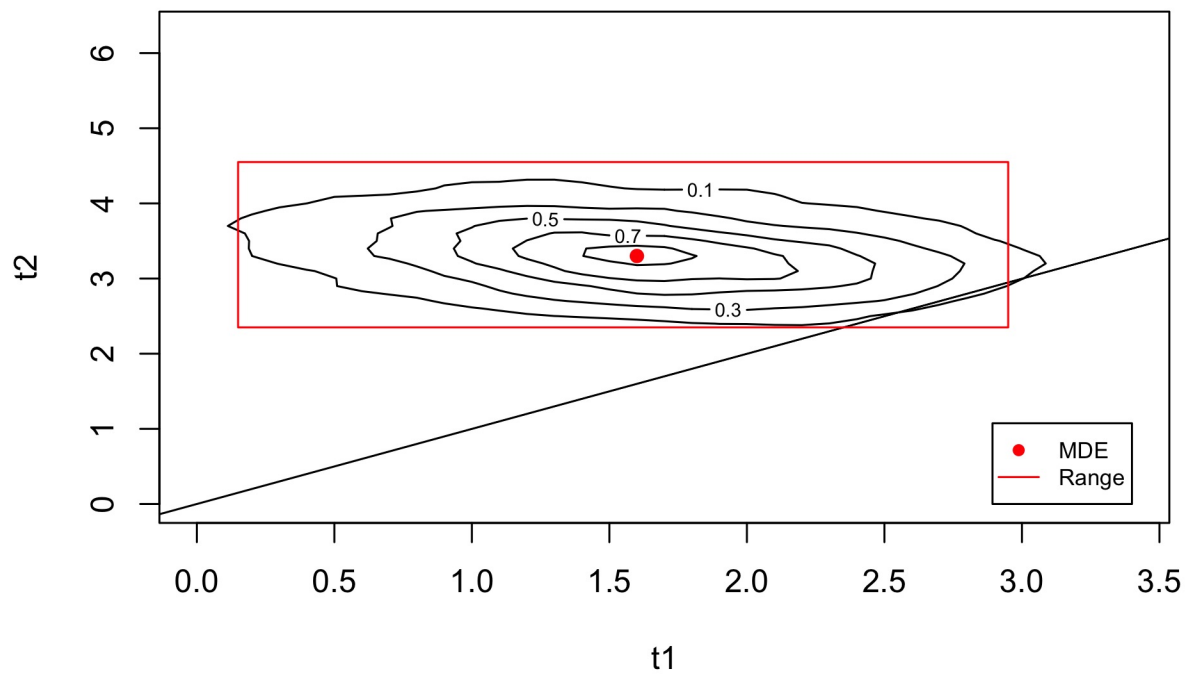
```
## Call:
## warnCI.default(object = Warn_KNU_m, threshold = 0.95)
##
```



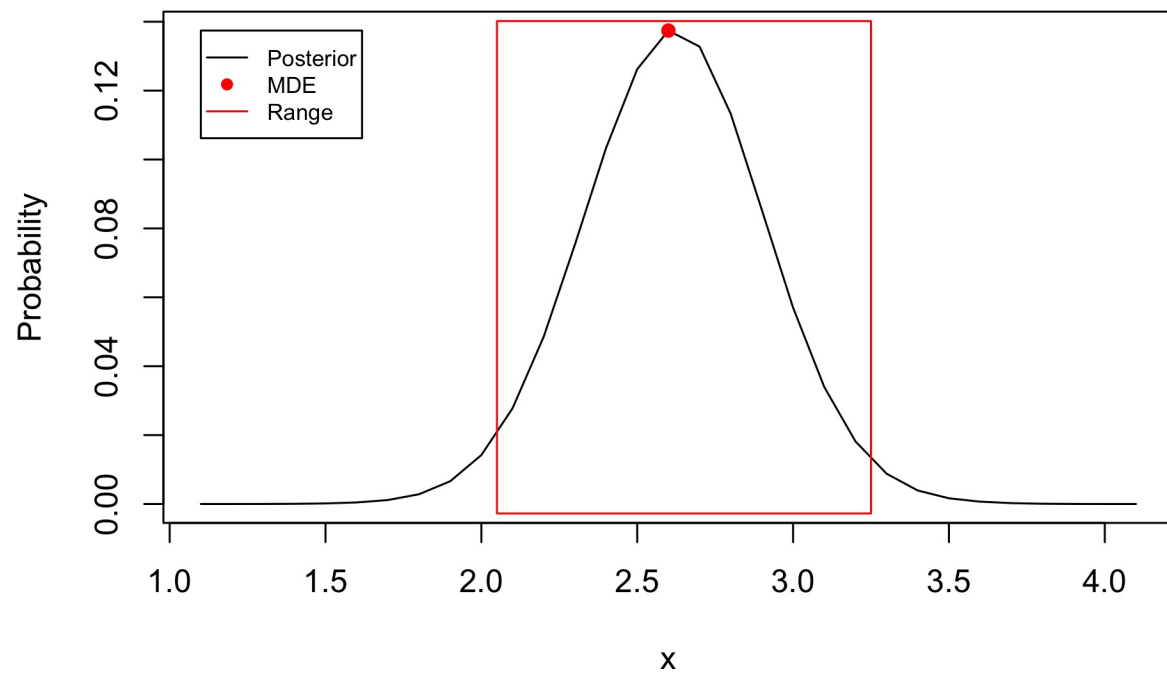
```

## CI and its probability:
##
## Weaning ages:
## $probability
## [1] 0.9551668
##
## $range
## from.x    to.x from.y    to.y
##    0.2    2.9    2.4    4.5
##
##
## Enrichment of d15N from mother:
## $probability
## [1] 0.9591186
##
## $range
## from.x    to.x
##    2.1    3.2
##
##
## d15N of collagen derived entirely from weaning foods:
## $probability
## [1] 0.9555936
##
## $range
## from.x    to.x
##    8.4    10.8

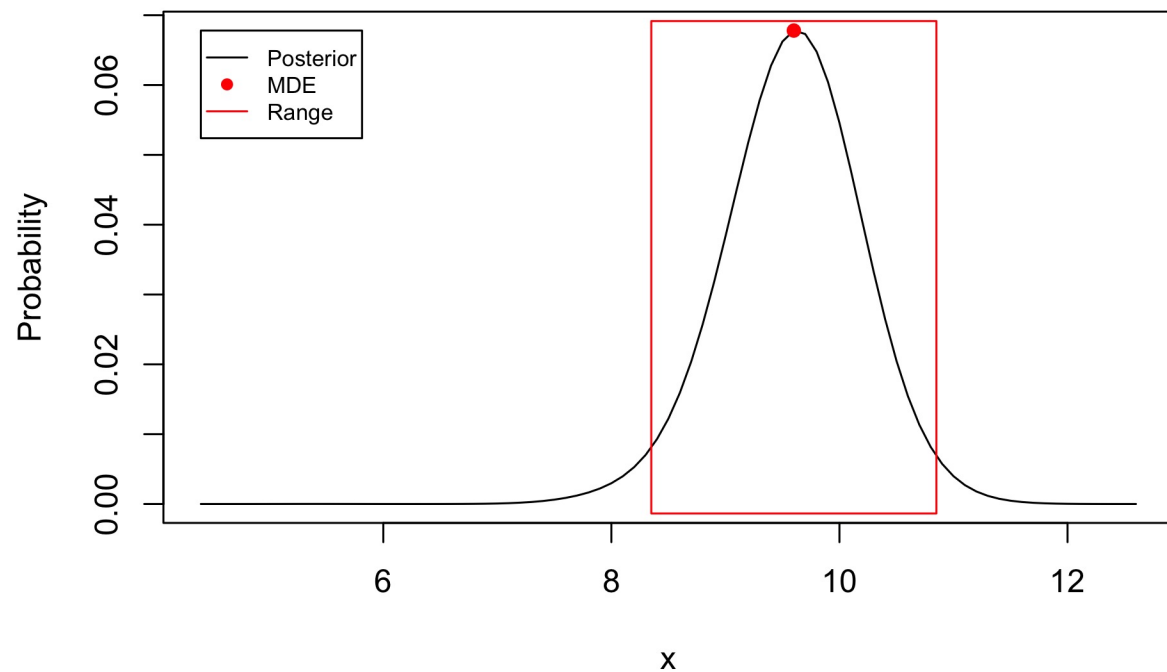
```



```
## $rect
## $rect$w
## [1] 0.5070525
##
## $rect$h
## [1] 1.074316
##
## $rect$left
## [1] 2.892948
##
## $rect$top
## [1] 1.074316
##
##
## $text
## $text$x
## [1] 3.134839 3.134839
##
## $text$y
## [1] 0.7162105 0.3581053
```



```
## $rect
## $rect$w
## [1] 0.5172091
##
## $rect$h
## [1] 0.03124839
##
## $rect$left
## [1] 1.1
##
## $rect$top
## [1] 0.1374354
##
##
## $text
## $text$x
## [1] 1.313433 1.313433 1.313433
##
## $text$y
## [1] 0.1296233 0.1218112 0.1139991
```



```
## $rect
## $rect$w
## [1] 1.413705
##
## $rect$h
## [1] 0.01541629
##
## $rect$left
## [1] 4.4
##
## $rect$top
## [1] 0.06780323
##
##
## $text
## $text$x
## [1] 4.983385 4.983385 4.983385
##
## $text$y
## [1] 0.06394915 0.06009508 0.05624101
```

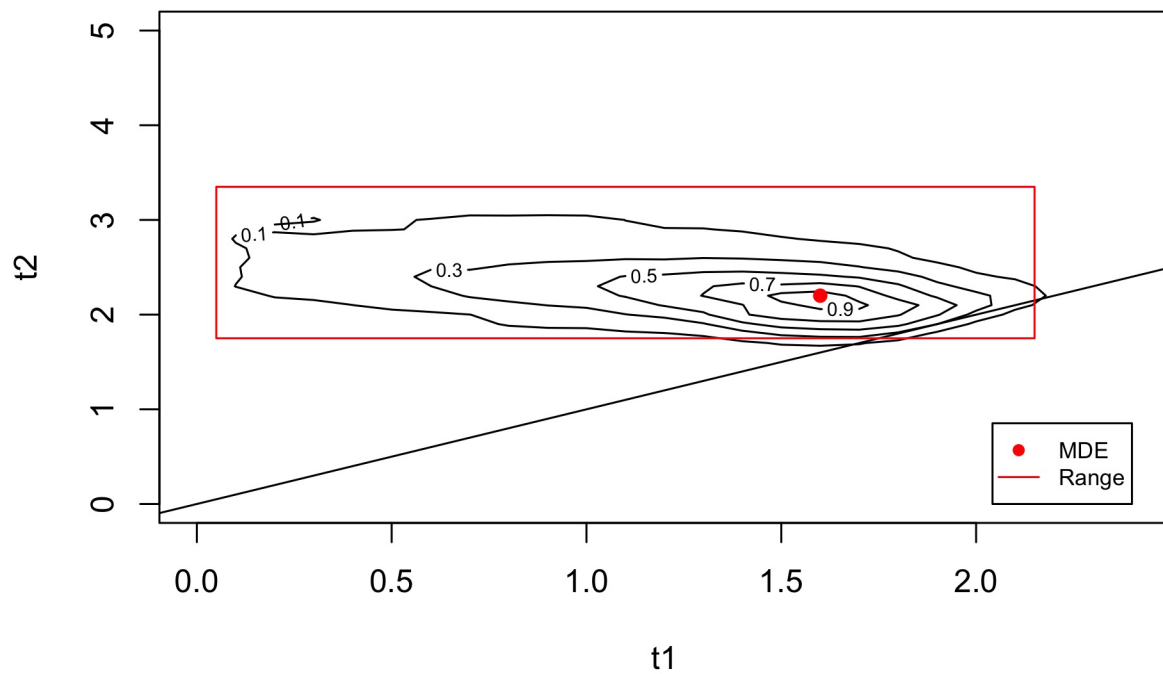
WarnCI distal

```
## Call:
## warnCI.default(object = Warn_KNU_d, threshold = 0.95)
##
```

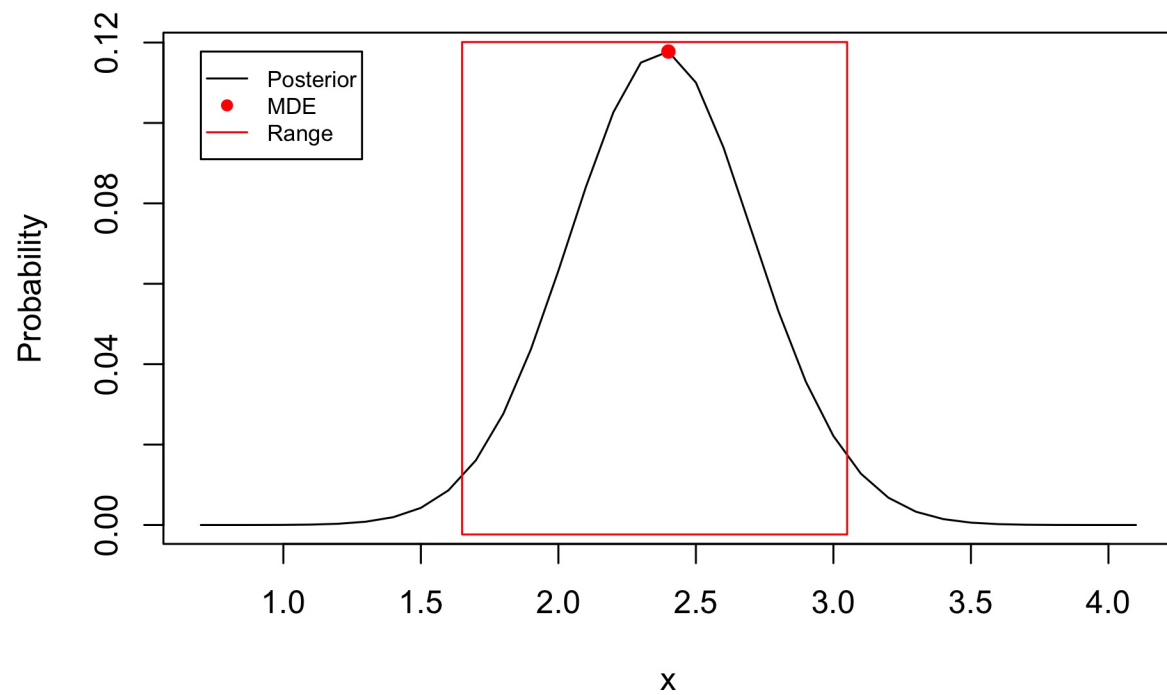
```

## CI and its probability:
##
## Weaning ages:
## $probability
## [1] 0.9555253
##
## $range
## from.x    to.x from.y    to.y
##    0.1    2.1    1.8    3.3
##
##
## Enrichment of d15N from mother:
## $probability
## [1] 0.9587266
##
## $range
## from.x    to.x
##    1.7    3.0
##
##
## d15N of collagen derived entirely from weaning foods:
## $probability
## [1] 0.9612238
##
## $range
## from.x    to.x
##    8.9    10.4

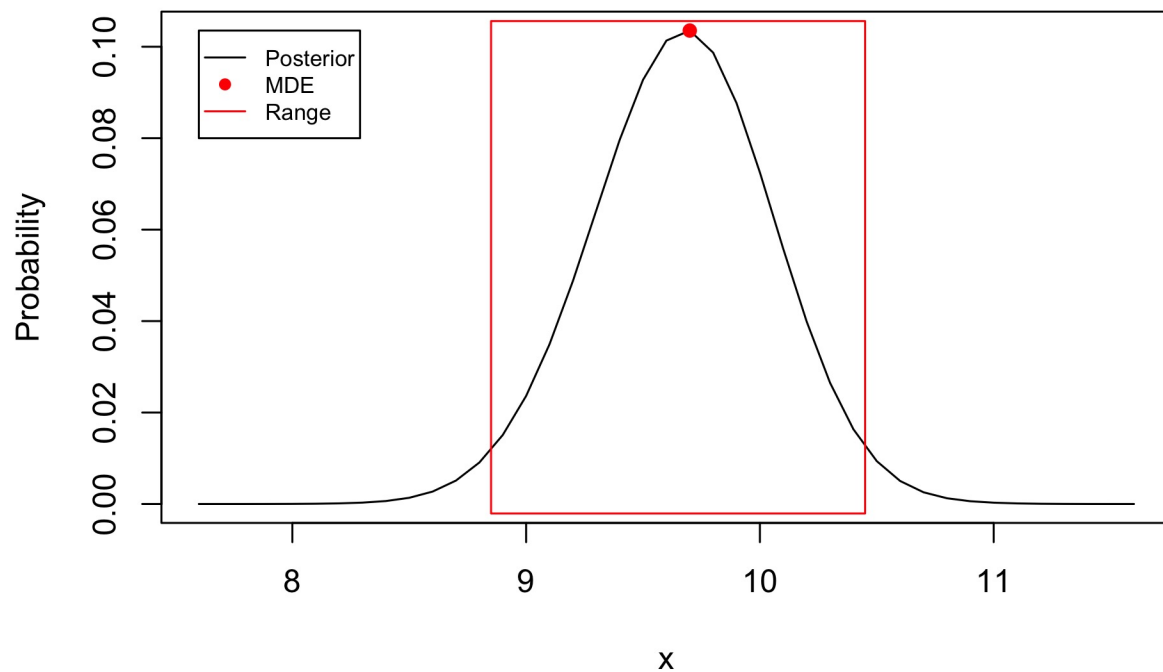
```



```
## $rect
## $rect$w
## [1] 0.3579194
##
## $rect$h
## [1] 0.8526316
##
## $rect$left
## [1] 2.042081
##
## $rect$top
## [1] 0.8526316
##
##
## $text
## $text$x
## [1] 2.212827 2.212827
##
## $text$y
## [1] 0.5684211 0.2842105
```



```
## $rect
## $rect$w
## [1] 0.5861703
##
## $rect$h
## [1] 0.02677445
##
## $rect$left
## [1] 0.7
##
## $rect$top
## [1] 0.1177581
##
##
## $text
## $text$x
## [1] 0.9418913 0.9418913 0.9418913
##
## $text$y
## [1] 0.11106453 0.10437092 0.09767731
```



```
## $rect
## $rect$w
## [1] 0.6896122
##
## $rect$h
## [1] 0.02354102
##
## $rect$left
## [1] 7.6
##
## $rect$top
## [1] 0.1035371
##
##
## $text
## $text$x
## [1] 7.884578 7.884578 7.884578
##
## $text$y
## [1] 0.09765183 0.09176657 0.08588132
##
## Call:
## warnCI.default(object = Warn_KNU_mix, threshold = 0.95)
##
## CI and its probability:
##
## Weaning ages:
```



```
## $probability
## [1] 0.9529684
##
## $range
## from.x    to.x from.y    to.y
##    0.0    2.4    2.1    4.1
##
##
## Enrichment of d15N from mother:
## $probability
## [1] 0.9506886
##
## $range
## from.x    to.x
##    1.9    3.0
##
##
## d15N of collagen derived entirely from weaning foods:
## $probability
## [1] 0.9546251
##
## $range
## from.x    to.x
##    8.6    10.7
```

WarnOptim medial

```
## Call:
## warnOptim.default(age = nonadult$age, d15N = nonadult$d15N, female.mean = mean(adult$d15N),
##    fraction = "collagen", par.initial = c(0.5, 3, 1.9, 10.39),
##    control = list(maxit = 10000, ndeps = 0.01, reltol = 1e-07))
##
## Optimized parameters:
##      t1      t2  enrich  wnfood
## 1.208163 2.160797 2.563159 9.851165
```

WarnOptim distal

```
## Call:
## warnOptim.default(age = nonadultd$age, d15N = nonadultd$d15N,
##    female.mean = mean(adultd$d15N), fraction = "collagen", par.initial = c(0.5,
##      3, 1.9, 10.39), control = list(maxit = 10000, ndeps = 0.01,
##      reltol = 1e-07))
##
## Optimized parameters:
##      t1      t2  enrich  wnfood
## 1.529687 1.774195 2.457088 9.797805
```

WarnProb medial

```
## Call:
## warnProb.default(object = Warn_KNU_m, weaning.par = "age", range.x = c(0,
##    1.1), range.y = c(0.8, 2.3))
##
```

```

## Weaning parameter:
## [1] "age"
##
## Range:
## from.x    to.x from.y    to.y
##    0.0    1.1    0.8    2.3
##
## Probability:
## [1] 0.0005930112

## Call:
## warnProb.default(object = Warn_KNU_m, weaning.par = "enrich",
##    range.x = c(1.5, 3.5))
##
## Weaning parameter:
## [1] "enrich"
##
## Range:
## from.x    to.x
##    1.5    3.5
##
## Probability:
## [1] 0.998902

## Call:
## warnProb.default(object = Warn_KNU_m, weaning.par = "wnfood",
##    range.x = c(7.3, 8.8))
##
## Weaning parameter:
## [1] "wnfood"
##
## Range:
## from.x    to.x
##    7.3    8.8
##
## Probability:
## [1] 0.1100362

```

WarnProb distal

```

## Call:
## warnProb.default(object = Warn_KNU_d, weaning.par = "age", range.x = c(0,
##    1.1), range.y = c(0.8, 2.3))
##
## Weaning parameter:
## [1] "age"
##
## Range:
## from.x    to.x from.y    to.y
##    0.0    1.1    0.8    2.3
##
## Probability:
## [1] 0.1516376

## Call:

```

```

## warnProb.default(object = Warn_KNU_d, weaning.par = "enrich",
##     range.x = c(1.5, 3.5))
##
## Weaning parameter:
## [1] "enrich"
##
## Range:
## from.x    to.x
##    1.5    3.5
##
## Probability:
## [1] 0.9964772
##
## Call:
## warnProb.default(object = Warn_KNU_d, weaning.par = "wnfood",
##     range.x = c(7.3, 8.8))
##
## Weaning parameter:
## [1] "wnfood"
##
## Range:
## from.x    to.x
##    7.3    8.8
##
## Probability:
## [1] 0.01945634

```